

IDEAS OF ANCIENT GREEKS ON THE ATOM

Democritus' Atomic Theory

1. All matter consists of invisible particles called **atoms**.
2. Atoms are indestructible
3. Atoms are solid but invisible
4. Atoms are homogeneous
5. Atoms differ in size, shape, mass, position, and arrangement.
 - Solids are made of small, pointy atoms
 - Liquids are made of large round atoms
 - Oils are made of very fine, small atoms that can easily slip past each other.

Democritus' atomic model was simply a round sphere with no electrons, protons, or neutrons.

Ideas that served as arguments against atomism:

1. Anaxagoras

– argued that there was an infinite number of elementary natural substances in the form of infinitesimally small particles that combined the different things in the universe.

2. Empedocles

– stated that everything is made up of four eternal and unchanging kinds of matter: fire, air (all gases), water (all liquids and metals), and earth (all solids).

3. Plato

– further expanded Empedocles' theory by saying each of the four kinds of matter is composed of geometrical solids (the "Platonic solids") further divisible into triangles could cause the apparent transformations between the four basic kinds of matter.

4. Aristotle – believed that everything in the universe is made up of the four elements: air, fire, water, and earth. He stated that believing in atoms would mean putting restriction on the gods, who have the power to divide elements smaller than the atom.